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ORIGINAL ARTICLES.

UNUSUAL CASE OF SYMPATHETIC BLINDNESS.

BY G. STERLING RYERSON, M.D., C.M., F.R.C.S., EDIN.,

Professor of Ophthalmology and Otology in Trinity Medical College, Toronto.

In October, 1891, Wm. W., æt. 28, was sent to me suffering from tumor of the right orbit. He stated that the growth had made its appearance in the spring of the same year, that it caused, at first, little or no pain, and that beyond the protrusion of the eyeball and dimness of sight, he felt little inconvenience. Three weeks before presenting himself, he noticed that the sight of the left eye was beginning to fail, and that he had considerable pain in the head. On examination the following condition was observed: Right eye—Eyeball pushed directly forward, pupil dilated and immobile. Eyelids distended and tense. On right temple a boggy swelling of considerable size was observable. Digital examination fails to reveal a tumor, and, except for swelling of the lids and temple, the result is negative. Left eye—pupil dilated, reacts some-

what to light. No protrusion. Movements normal. Vision= shadows. Ophthalmoscopic examination; in left eye well marked optic neuritis was present. Swollen disc, dilated vessels and minute hemorrhages were to be seen. In right eye—well marked optic atrophy. I could not determine with certainty if it was the sequel of neuritis or not. My diagnosis was sympathetic neuritis due to pressure by a tumor of the optic nerve. The following day I proceeded to eviscerate the right orbit. After removing the eyeball and introducing my finger I could feel a tumor the size of a horse-chestnut at the apex of the orbit. I proceeded to remove it and other contents of the orbit. It had the macroscopic appearance of a sarcoma when removed. The patient recovered from the first effects of the operation well, but upon making my evening visit I found him semi-comatose, and he could only be roused with difficulty. He had considerable venous oozing from the orbit. I believed he had had some hemorrhage beneath the dura mater as the tumor was very far back in the apex of the orbit. I believed blood had entered the orbit by the sphenoidal fissure or optic foramen. However, in thirty-six hours he was better and in three days was quite sensible. The oozing still continued and did not entirely cease for a week. The orbit gradually healed by granulation, so that the patient was able to return home in about four weeks after the operation. The sight remained in *statu quo*. This patient suffered severely from pain in the head. In March he had an attack of paralysis and died May 9. No post-mortem was allowed. There were indications of return of the orbital tumor also.

My second case was that of a man, æt. 53, whose right eye had been abcised twenty years ago. He came to me February 20, 1892, complaining of gradual failure of sight of some months' standing. Left eye V=$^{15}/_{L}$, 10 Sn. The stump of the right eye was hard, tender to the touch, and the seat of occasional pain. Ophthalmoscopic examination of the left eye revealed beginning optic atrophy. I advised immediate removal of the stump, to which, he agreed. I accordingly did the operation. The shrunken bulb was found to contain the

remains of the choroid and retina and some grumous fluid. The first had undergone satisfaction. This man's sight improved considerably for a time, but it failing again, he was put on hypodermic injections of pilocarpine, alternated with strychnia. But in spite of this and other treatment the sight has steadily failed. I believe the optic atrophy in this case was strictly sympathetic and dependent upon the irritation caused by the shrunken stumps. There was no tobacco abuse, spinal lesion, or any cause other than the irritating degenerated eyeball.

SOCIETY PROCEEDINGS.

SECTION ON OPHTHALMOLOGY, AMERICAN MEDICAL ASSOCIATION, JUNE 7, 8, 9, AND 10, 1892, DETROIT.

CHAIRMAN, DR. J. L. THOMPSON, OF INDIANAPOLIS; SECRETARY, DR. GEO. E. DE SCHWEINITZ, OF PHILADELPHIA.

[CONCLUDED].

IMMATURE CATARACT AND THE BEST WAY OF HASTENING MATURITY.

By Dr. Joseph A. White, Richmond.

The author presented his experience with a little used method, which he calls "the method of paracentesis and external massage." He considered the five other modes of ripening cataract, viz.: 1. Simple division of anterior capsule. 2. Division combined with iridectomy. 3. Division and external massage, 4. Iridectomy and external massage (Foerster's operation). 5. Internal massage directly upon the anterior capsule.

He held that the method he follows is free from all the dangers attending the others and equally efficacious. In the 15 cases operated on, none had any unpleasant sequelæ and the cataract in each case ripened rapidly, the shortest time being two days and the longest two weeks. The advantages of the method are that the cortical masses are opacified, freed from the capsule and more easily delivered in the subsequent

extractions. The time for the operation is when the patient can no longer read.

Contra-indication are, insufficient dilation of the pupil under atropine and a weak zonula. The operation is done by drawing off the aqueous thoroughly after maximum dilatation of the pupil and then rubbing the cornea up and down, from side to side and round about with sufficient force to crush the cortical masses. It is especially valuable in slow developing cataracts in persons under 60 years of age, and it obviates the necessity of removing such cataracts when immature, a proceeding always attended with more or less risk. It also does away to some extent with the necessity of irrigation of the anterior chamber, as the toilet of the eye is much easier in the cataracts thus referred, the cortex being less sticky and readily delivered. He considered irrigation hazardous and to be avoided if possible.

TREATMENT OF INCIPIENT CATARACT.

By Dr. A. J. Erwin, Mansfield, Ohio.

The speaker gave a detailed report of several cases of incipient cataract when the progress of the affection had been retarded by the use of galvanism to the eye and application of tincture of iodine to the eyelid three times a week. He did not advocate medication to take the place of surgical treatment, but when the existing vision is equal to the vision that you would secure after extraction, he thought it well to try to save the lens, thus avoiding the necessity for operation and the risks attending it.

THE METHODS AND RESULTS OF SIMPLE CATARACT EXTRACTION.

By Dr. H. Knapp, of New York.

Dr. Knapp's remarks were based upon 683 extractions performed by him during the past six years; 623 were without, and 60, or 10% with iridectomy. All cases are included. He considers ripening operations superfluous and prefers the risk

of removing an immature cataract to that of artificial ripening. He however avoids operating on cataracts swollen by imbibition. The patient is operated on on a chair under aseptic precautions and when the operation is over, undresses and goes to bed with his eyes open. In from five to thirty minutes the eye is inspected and when the wound and iris are all right, he applies a bandage which consists of a piece of moistened corrosive sublimate gauze and absorbent cotton fastened by two strips of isinglass plaster. Of 125 successive cases treated in this way, one showed at the inspection a distorted pupil (which was made round again by stroking the iris back, but the patient had a subsequent prolapse) and two incarcerations of the iris for which iridectomy was done on the spot; recovery undisturbed.

The most important step of the operation is the corneal section. For ordinary cataracts it should comprise half the circumference of the cornea and pass strictly through the transparent margin, rather trespassing on the cornea than on the sclerotic, the knife remaining in the same plane from beginning to the end of its course, the least turning on its axis being carefully avoided. Such sections close and heal admirably. The capsule is opened with a delicate cutting cystotome behind the iris, parallel to the corneal section. The removal of a piece of the anterior capsule is confined to the thickened center of hypermature cataracts. The lens is expelled by pressing with a Daviel's spoon on the lower end of the cornea. In restless patients and when prolapse of the vitreous is imminent, he removes the fixing forceps and speculum and presses the lens out by pressure of the lids, care being taken to prevent the edges of the lid from coming in contact with the wound, in order to avoid infection. He has seldom had to resort to traction instruments. The remnants are pushed into the wound with the lids and wiped off with a sterilized silver spatula. The iris, if not spontaneously falling back, is reduced with an olive-tipped probe from under the transparent corneal margin. If there is any difficulty and in all peripheric sections it is advisable to make a small iridec-

tomy. In five or six hours the pain disappears. If later, it reappears, but passes in about an hour, prolapse of the iris has, in all probability, occurred. When it is brought to notice soon, the eye is opened and the prolapsed iris cut, otherwise it is dealt with later on. For a time he had cut the prolapse as soon as it was noticed, commonly on the fourth day. The results were unfortunate. Besides good recoveries there was one loss by suppuration and two by irido-cyclitis, followed by sympathetic ophthalmia.

The patients are usually discharged at the end of the second week with an average visual acuteness of $^{20}/_{10}$ which for a few months may somewhat increase, but then gradually sinks, not only after this mode of operation, but after all others except where the lens has been removed in its capsule or in a certain number of cases when a piece of the anter capsule has been removed.

In order to obtain permanently good vision he had for years made a secondary division of the capsule, which he considers now as much as before, an integral step, the final act of the operation in most cases. The dicission can be done as soon as the wound is firmly healed or any time later; but about four to five or six weeks after the operation. It is best done with a knife-needle, so shaped that no aqueous humor escapes and the capsule is cut, not torn. Thus far he had not lost or even damaged an eye by this operation. In ten cases glaucoma developed after it which in the milder cases was cured by pilocarpine; in the severer ones by an iridectomy with a blunt hook. The secondary discission is a delicate operation, requiring good instruments, perfect artificial illumination and careful examination of the condition of the pupil. Pulling resistant cords to and fro and deep ploughing of the vitreous should be avoided.

The results sum up as follows: The last series includes 346 cases; uncomplicated cataracts, 301; failures, 4; complicated cataracts, 45; failures, 7. Arranged in the usual manner the results were: good, 84%; moderate, 13%; failure, 3%; (to which two eyes lost by sympathy have to be added) Adding

to these the more favorable results in the first series of 300 cases, we obtain 89% good; 9% moderate; 2% failure.

A NEW OPERATION FOR TRICHIASIS AND DISTICHIASIS.

By Dr. Eugene Smith, Detroit.

A clamp is placed upon the lid and an incision made between the normal and faulty cilia extending well up to the hair follicles. The wound is then made to gap and the follicles of the faulty cilia are destroyed by being touched with the fine wire galvano-cautery. During the past five years the speaker had employed this method at least fifty times and always with complete satisfaction.

THE PATHOLOGY AND TREATMENT OF INFANTILE CATARACT.

By Dr. A. R. Baker, of Cleveland, Ohio.

The author called attention to the necessity of having a more uniform classification of cataracts. He expressed the opinion that anterior polar cataracts were nearly always due to perforation, or at least to inflammation of the cornea.

The following conclusions were presented:

1. Infantile cataracts should be operated on early, within the first year if possible.

2. In pyramidal and zonular cataracts in which vision cannot be improved to $^{20}/_{L}$ after fully dilating the pupil, removal of the lens is to be preferred to iridectomy.

3. Soft cataracts are best removed by linear extraction.

4. Soft cataracts, including zonular and capsular, are best treated by first breaking up the lens thoroughly and removing a few days later by the combined linear extraction and suction operation.

5. Small dicision is sufficient in very young infants unless nystagmus should be present.

6. Only one eye should be operated on at a time.

7. There are a few cases in which it may be advisable to extract one lens for distant vision, and make an iridectomy on

the other eye, so that a certain amount of accomodation may be preserved for near work.

A CASE OF CONGENITAL ECTOPIA LENTIS.

By Dr. George Friebis, of Philadelphia.

The case reported was that of a boy, 7 years of age, and the following conclusions were presented:

1. Congenital ectopia lentis is usually double.
2. It is a congenital malformation, the cause of which has not yet been positively established.
3. Amblyopia and ametropia are always concommitant conditions.
4. The majority of cases, so far reported, sustain the theory of heredity as the primary cause.

In the discussion of this subject, Dr. Bryant, of Omaha, stated that he had seen a family in which five out of seven children suffer from ectopia lentis, the parents having healthy eyes; and another family in which three children and the mother suffer from the same trouble.

Dr. Morrow referred to a family in which he had seen four cases of this condition and had obtained the history of a fifth member similarly affected.

Dr. Alexander Randall, of Philadelphia, stated that he had seen two cases of dislocation in Jaeger's clinic, and the point had been made that where the dislocation was symmetrical the condition was probably congenital, while if the dislocation was not symmetrical it was probably the result of traumatism.

Dr. Eugene Smith, of Detroit, mentioned the case of a boy who could dislocate the lenses at will by throwing the head forward and replace them by throwing the head back.

INJURY OF THE LENS, WITH CASES.

By B. L. Milliken, of Cleveland.

From a clinical standpoint, injuries of the lens may be divided into two classes: 1. Those where the chief injury is to

the lens mass itself, and, 2. Those where there is, in addition, a grave lesion of other structures of the ball. In the first class are comprised such injuries as bits of steel or iron lodging in the lens substance, spicules of iron penetrating the cornea and lens, but not remaining. The second class is of great importance. The most serious cases of this class are those where there is injury to the ciliary body. The results depend materially upon whether the foreign body remains in the eye or not. Most injuries of the lens are liable to terminate in traumatic cataract, more or less complete, depending upon the extent of the lesion of the lens or capsule. The rapidity of development of traumatic cataract will depend upon the extent of the lesion of the lens, and especially of the capsule. Sometimes opaque portions of the lens change rapidly and considerable areas will be absorbed in a short time. Occasionally a line of opacity will disappear entirely, while again, such a line may remain for years, marking the course of a penetrating body.

Six cases were reported illustrating the points brought forward:

1. Spicule of iron penetrating cornea, iris and lens. Opacity cleared completely. Vision normal.

2. Fragment of musket cap penetrating cornea, iris and lens, and lodging in vitreous. After twenty years only an opaque line through lens. Vision useful.

3. Grain of powder penetrating cornea and injuring capsule and lens, followed by considerable opacity which ultimately cleared up leaving only a spot, and vision nearly normal.

4. Wound of cornea and capsule by a piece of wire, escape of some lens-substance, immediate loss of vision. Opacity occurred, but this gradually cleared until patient could count fingers at 8 feet. The opacity, however, recurred.

5. Injury of both eyes at considerable intervals. At age of 21 years patient received a linear wound of the cornea from being struck with an iron bar, this caused an injury of the capsule. Opaque lens-material was removed by operation, and

by a second operation the capsule was slit with favorable results.

A year later the other eye was struck by a piece of steel at the cornea-scleral junction. In a few days forming traumatic cataract could be seen, after a few weeks this cleared up to a certain extent, but later the cataract involved almost all the lens.

6. A man was struck in the left eye by a piece of steel, he continued working all day, although unable to see. The eye was examined by a physician who did not discover any foreign body. Shortly afterward the opaque lens-matter was removed by operation, but vision remains absent, and the foreign body still remains in the eye.

Few lens injuries but leave some permanent damage. The first requirement is removal of the foreign body when possible, then aseptic and antiseptic washes. Atropia, sufficiently strong, to dilate the pupil and keep the iris out of harm's way is of great value. The eye should be kept at rest, as the cataract is, doubtless, largely due to the abusive use of the eye. The alternate use of atropia and eserine is of service in iritic attachments. In the old the use of mydriatics must be carefully watched to avoid the development of glaucomatous symptoms.

SUCCESSFUL EXTRACTION OF A PIECE OF STEEL FROM AN IRIS AND LENS BY AN IRIDECTOMY WITH SUBSEQUENT ABSORPTION OF THE LENS SUBSTANCE AND RECOVERY OF NORMAL VISION.

By Dr. Chas. A. Oliver, Philadelphia.

The case reported was that of a man, æt. 29, who had a piece of steel imbedded in the upper inner quadrant of the iris and lens. Two days after the accident the injured portion of the iris was removed with the foreign body. The lens showed a point of ruptured capsule and was swollen and opaque in the immediate vicinity. Under atropine, light pressure bandage,

rest in bed, and small doses of calomel internally the wound healed and inflammation subsided. In one month the lens was absorbed, the eye quiet, and vision brought to normal by the correcting lens. Fifteen months after the accident the eye was perfectly quiet with a narrow coloboma and +11 sph. ⊃0.50 cyl. ax. 100° gives normal vision.

A paper by Dr. T. E. Murrell, Little Rock, Ark., on

EYE INJURIES CONSIDERED IN RELATION TO SYMPHATHETIC AFFECTIONS,

was read by title, and referred to the Publication Committee.

RESECTION OF THE OPTICO-CILIARY NERVES.

By Dr. Julian J. Chisolm, Baltimore, Md.

In this paper Dr. Chisolm gave his experience of the past eighteen years. He made a strong plea for neurotomy as against enucleation in all cases of eyes which are not deformed in appearance, although they may be sightless, and the cause of much suffering and danger. At the Presbyterian Eye, Ear and Throat Charity Hospital, of Baltimore City, there have been eighty-one of these neurotomies; a sufficiently large number to draw safe conclusions from. He has met with none of the dangers which some surgeons have experienced. In no case has life been jeopardized, nor has there been in a single case any annoying hæmorrhage, orbital abscess, cellulitis, corneal sloughing, nor, as far as he is aware, eyeball atrophy. He has not been able to trace all of his cases since they left the hospital. In four cases only, as far as he has been able to learn, has enucleation been required as a subsequent operation. Other patients may have been compelled to have had recourse to this more radical method, but if so it has not come to his knowledge.

He has been visited by many of his patients years after the neurotomy, and found them enjoying perfect comfort from suffering, and with a good looking eye, infinitely more valuable

than any artificial eye that could have been obtained. He thinks that many surgeons have become timid concerning neurotomies from dangers which have followed the operation at the hands of others, without considering the causes which might have induced the trouble. He thinks that most of these can be traced directly to the operative procedure.

The very first year of his trial, he abandoned the elaborate technique as one fraught with danger. The cutting of muscles tended to future deformities, the exposure of the nerve to the eyes of the operator with the extensive dissections necessary to this end, excited cellulitis, and induced complications. His method of operation is of the simplest. Under a general anæsthetic (he administers the bromide of ethyl because of its promptness and also its evanescent nature) he makes an horizontal snip of the conjunctiva running parallel with the lower border of the inner rectus muscle, the duplicate of that made for squint. When the fascia has also been freely opened by means of the scissors, a sharp hook is passed through the wound and into the sclerotic. By means of this the eyeball can be rotated forcibly outward, bringing the bundle of nerves within easy reach for section. The enucleation curved scissors is introduced through the open wound to the back of the eye. Using it as a probe the optic nerve is sought. When this cord is felt the edge of the scissors with its closed blades pressing against the nerve is slowly drawn outward. The moment the nerve escapes the blades of the scissors are widely opened, the nerve bundle caught between them and the entire mass divided. The recognized toughness of the optic nerve and the consequent resistance to the closing of the scissors is a sure evidence that the proper structures have been secured. As another sign that the section has been completed the closed scissors will move in all directions behind the eyeball without meeting any resistance. The ciliary vessels have been divided simultaneously with the nerves. Blood at once escapes into the socket, causing the eye to protrude from between the lids, some blood also escapes from the conjunctival wound. To prevent much eyeball displacement a compress and

bandage is immediately applied firmly over the eye and is left in place for twenty-four hours. Should this firm pressure cause pain a hypodermic injection of morphia brings prompt relief. On examination of the eye the day after the nerve section, complete anæsthesia of the cornea is the evidence that the object of the operation has been accomplished. The patient is ready for dismissal after a very few days the only drawback being a very black eye from blood extravasation, which will take two weeks for removal. This operation is so simple and rapid in its execution, and so devoid of danger that patients will accept it who refuse the enucleation. If an eye is ugly looking, as well as painful and dangerous, no surgeon would advise its retention. But when the dangerous eye is still good looking he gives the patient the chance of retaining it by nerve section. He is sure that he has made a great many haypy by this operation, and at the same time has given all the safety that the removal of the eye could have secured.

THE SURGICAL TREATMENT OF TRACHOMA.

By Dr. John E. Weeks, of New York.

The author divides trachoma into three stages: 1. The early stage, in which the granules are still discrete, the conjunctiva hypertrophied, secretion more or less profuse, cornea not affected. 2. In this stage the granules have coalesced to a greater or less extent; there is some cicatricial contraction of the conjunctiva with shortening of the palpebral fissure, the hardened sclerosed condition of the trachomatous tissue has produced pannus and superficial or deep ulceration of the cornea in many cases. 3. This stage is essentially one of atrophy of the conjunctiva with its accompanying conditions, pannus, ulcers and opacities of the cornea. The surgical treatment of the first and second stages was considered based on the following indications: First, the obnoxious tissue should be removed if such a thing is possible without producing too much deformity of the lids; second, the germs instrumental in the

production of the disease should be destroyed if any remain after the mechanical treatment of the surface.

The following is the treatment recommended in the first stage: In the first place the surface should be very superficially scarified, the lines of incision running parallel to the margins of the lid; the contents of the granules should then be expressed (the author prefers Noyes' forceps for this purpose) and a germicide in the form of a solution of the bichloride of mercury, $^1/_{1500}$ to $^1/_{1000}$ should be introduced into the tissue by means of a tooth-brush. The aftertreatment consists in preventing adhesions between folds of conjunctiva, and of the application of antiseptic and astringent medication. The treatment advocated for the second stage is that known as grattage, an operation introduced by Darier in Abadie's clinic, Paris. For the performance of the operation the author has devised a three-bladed scarificator and a forceps. The operation consists in everting the lids by means of the forceps, scarifying the involved portion of the conjunctiva to two-thirds of the thickness of the trachomatous tissue and scrubbing the surface with a tooth-brush which carries a solution of the bichloride of mercury, $^1/_{1500}$. Canthoplasty is done if the palpebral fissure is short. The aftertreatment consist in the use of antiseptics and astringents, and must be continued until the lids assume a smooth surface, which may be from three weeks to a month.

The following conclusions were presented:

In the first stage of trachoma the most efficient mode of treatment is superficial scarification with expression, and the use of a germicide solution introduced by means of a brush.

In the second stage, if surgical interference is advisable, grattage, combined with expression, in some cases; canthotomy or canthoplasty, if necessary, gives the most satisfactory results. The operation above advised converts a contagious into a non-contagious condition.

A FEW EXPERIMENTS WITH THIERSCH'S SKIN GRAFTS IN THE OPERATION FOR PTERYGIUM.

By F. C. Hotz, of Chicago.

To insure the permanent success of our operations for pterygium we must arrange matters so that the conjunctivæ, after being released from the cornea, cannot be drawn back over cornea again. In pterygia of moderate extent this is usually accomplished if we close up the gap in front of the retracted pterygium by drawing the conjunctiva from above and below to a horizontal linear wound, but if the pterygium is very broad, the defect in the ocular conjunctiva is so large that the edges of the wound cannot be united without considerable strain upon the sutures, they often tear out, the edges separate, cicatricial tissue fills the gap and a return of the pterygium is the ultimate result.

In looking for some suitable material which might be substituted for the conjunctiva, Dr. Hotz thought of Thiersch's skin grafts, which in a number of cases of symblepharon had proven themselves an excellent material for patchwork in the conjunctiva. He had tried this plan in three places. The pterygium was thoroughly dissected back from the cornea and sclero-corneal region and allowed to retract toward the caruncle as much as it would. Upon the large wound-area, resulting from the retraction of the conjunctiva, a Thiersch graft was placed, shaved off from the forearm and directly transported from the razor to the eyeball. It was found best to cut the graft a little smaller than the wound, especially in the horizontal diameter. The graft was carefully spread out smoothly over the wound with its one edge following the margin of the cornea; the graft adhered readily, and after two weeks its whitish color blended well with the white of the eye.

The grafting experiment was successful in all three cases, inasmuch as the grafted piece adhered firmly to the sclera along the corneal border, and formed a strong barrier which effectually stopped the conjunctiva from crossing the corneal

border. Dr. Hotz, therefore, thinks this plan a skin grafting may be recommended as an operative procedure for these troublesome cases of extensive pterygium.

ORBITAL AND OCULAR GROWTHS.

Dr. Joseph A. White, of Richmond, Va., and Dr. Wm. M. Gray, of Washington, reported four cases:

The first was one of intraocular melanotic sarcoma. It originated in the ciliary body and extended backward toward the nerve which was severed three-quarters of inch back of the eye.

The other three were extraocular. One was a sarcoma of the orbit, originating in the sub-conjunctival tissue of the lower cul-de-sac. The eyeball had to be removed in order to get at the tumor; a second was a recurrent fibroid of the orbit, extending from the inner and lower orbital edge back to the sphenoidal fissure; the eye had to be scarified in order to enucleate the growth. A third was a tuberculous tumor of the orbit in a healthy girl, aged 16 years. It was attached to the outer and lower orbital edge and extended backward behind the eye. It was removed with preservation of the eye. It was about one inch long and three-quarters of inch wide. The rarity of this kind of a tumor and its development in a young and otherwise healthy girl are of special interest. The paper was illustrated by micro-photographs prepared by Dr. Gray.

Dr. Edward Jackson reported a case of,

IVORY EXOSTOSIS, OR BONY TUMOR OF THE ORBIT,

occurring in a healthy girl of 19, with preservation of vision, and presented the specimen. The tumor had been first noticed two years before and had slowly continued to increase with some pain. The eye was displaced downward and forward about a centimeter in each direction. The growth proved to be an ivory exostosis firmly attached by a broad base to the upper inner wall of the orbit. It was removed through an incision made just below the margin of the orbit, the lids be-

ing stitched together during the operation to prevent exposure of the protruding cornea. The removal was affected chiefly by drilling holes in the bone, breaking it in two pieces and drilling through the base, the operator finding that the saw and chisel had but a limited application. The remomal of the growth opened the frontal and ethmoidal sinuses. The wound was dressed antiseptically and united by first intention, the drainage and sutures being removed on the seventh day: At first there was almost complete immobility of the eye with diplopia. The ocular movements were however rapidly regained and when the patient was discharged at the end of one month were again perfect, the only remaining defect being some ptosis; the elevator of the lid being either permanently damaged by the growth or involved in the cicatrix. Although vision was not perfect in the eye involved, the amblyopia with high hyperopic astigmatism probably antedated the tumor.

A CASE OF RARE FORM OF ORBITAL TUMOR,

was reported by Dr. Geo. E. Frothingham, of Detroit, with exhibition of the patient.

Dr. Robert D. Gibson, of Youngstown; Ohio, read a paper giving his

RESULTS IN THE TREATMENT OF KERATOCONUS BY MEANS OF GALVANO-CAUTERY AND IRIDECTOMIES.

THE ETIOLOGICAL RELATIONS OF NASAL DISEASES TO AFFECTIONS OF THE EYES.

by Dr. H. Gradle, of Chicago.

The proof that certain ocular affections are the consequence of nasal disease may be furnished in various ways. First, we can observe the extension of nasal disease into the orbit and appendages of the eye. Second, we may find clinically certain eye diseases occurring so regularly in connection with nasal affections as to suggest the dependence of the former upon

the latter. Third, we may be able to influence the course of eye diseases by nasal treatment. American authors have dwelt mainly on eye symptoms of nasal origin, but there are besides actual eye diseases with visible lesions, the etiology of which must be sought in the nose. The nasal origin has been proven in the following instances:

1. Disease of the tear passages (in the majority of cases) besides mere reflex lachrymation.

2. Vascular disturbances of the lids varying from œdema to an erysipelatoid condition; certain cases of blepharitis.

3. Conjunctival congestion and indirectly chronic catarrh (of which nasal diseases are not the only cause). Certain forms of acute conjunctivitis accompanying coryza.

4. The dependence of some forms of corneal disease upon nasal disturbance,is probably, but not definitely proven. The author's experience refers to phlyctenular disease and to sclerosing form of vascular keratitis.

5. Some attacks of iritis.

6. An ill-defined disease suggesting glaucoma, characteracterized by reduction of sight, visual field and accommodation with intra-ocular congestion.

7. The optic nerves may become involved by extension of disease from the sphenoid sinus.

8 Some of the peripheral forms of paralysis of the ocular muscles.

9. Some inflammatory forms of orbital disease and some orbital tumors originate in diseases of the nose and accessory sinuses. Exophthalmic goitre has, in a few instances, been cured by intra-nasal treatment.

10. The most frequent ocular troubles of nasal origin, are the functional derangements, such as itching and burning of the lids, feeling of dullness or shooting pains and less commonly aching. With these annoyances there may or may not be asthenopia. If present, the latter depends generally upon intra-ocular causes, but cases of purely nasal origin also occur. Other functional disturbances which can sometimes be traced

to the nose as their starting point are fugitive scotoma, blepharospasm and chorea of the lids.

STRICTUROTOMY FOR THE RADICAL CURE OF STRICTURE OF THE LACHRYMAL DUCT—ALSO A STRICTUROTOME.

By Charles Hermon Thomas, M.D., of Philadelphia.

In the treatment of stricture of the lachrymal duct, no method of treatment is so generally adopted as that of dilatation, but the results, are as a rule, unsatisfactory. In 1868, Stilling deseribed a method employed by him for the treatment of stricture of the lachrymal passages by internal division and described the knife which he employed. While the operation seemed to be correct in principle and likely to give good results, the instrument figured did not seem to Dr. Thomas to be well adapted for the purpose. In order to carry out this plan of treatment, the author had made, in 1869, an instrument which he had employed for the past twenty-two years with excellent results. The instrument consists of a combined sound and knife with a flexible shaft permitting it to be bent to any convenient curve. The conical tip serves both as a guide and as a dilator.

In operating the first step is the slitting of the canaliculus, the lower if a style is to be used, otherwise the upper one. The cut is to be made along the inner edge of the lid and the opening into the sac must be made sufficiently large to admit of the insertion of the necessary instruments. The canal is next explored by Bowman's or William's probes to locate the position and calibre of the stricture. The stricturotome is then well oiled and introduced, special care being taken to place the point of the instrument within the grasp of the stricture. Gentle, steady pressure is then made and the cone and blade carried through and beyond the constriction. The blade is then withdrawn sufficiently to engage the stricture and incision made, completely dividing the strictures at the strictured point, even to the bone, in at least three different direc-

tions. The instrument should now be moved laterally in all directions, to make sure that no narrowing remains, and before withdrawal it should be carried into the nasal fossa as an exploring instrument. The most common seat of stricture is at the junction of the sac and duc. The whole procedure is singularly free from pain and with cocaine the pain is insignificant. There is very little hæmorrhage.

In the after-treatment a large leaden style, eight or ten millimeters in circumference is usually introduced. The upper extremity of the style is bent at right angle and so reduced in size as to drop into the groove formed by the divided canaliculus. At first this is removed every day or two, but after the first ten days, it need not be disturbed for a week at a time. At the end of a few weeks, the style may be removed altogether. The speaker thought that probably the chief reason why the operation of Stilling had not met with more favor had been the formidable character of the instrument which he recommended.

As compared with probing, stricturotomy promises immediate relief and a radical cure, while probing is tedious, painful, and often ineffectual. Stricturotomy was not recommended in all cases of epiphora, nor yet in all cases of dacryocystitis.

The speaker had recently had the opportunity of examining the first case on which he had operated by this method, more than twenty-two years ago. This lady had suffered from stricture of the duct, causing dacryocystitis and epiphora. She had been perfectly well from the time of the operati n to the present day. Pressure over the sac shows not a trace of regurgitation and a large Bowman's probe is readily passed into the nose without encountering the least indication of stricture.

In the light of all the facts, the author felt warranted in stating his belief that the time has come when probing as a method of treatment should be discarded, and also that stricturotomy as here described—based as it is upon sound surgical principal and supported by experience—should be substituted

for it, and all other instrumental procedures now in use for the taeatment of stricture of the lachrymal duct.

HETEROPHORIA AS A CAUSE OF RHINITIS AND TINNITUS AURIUM.

By Dr. Leartus Conner, of Detroit.

He reported a case of a young woman with rhinitis followed later by tinnitus aurium. The attacks of rhinitis occurred on an average once a week and lasted from two to four days. These attacks had been present for eighteen months and were gradually getting worse. Exophoria was noted and in February, 1891, a three-degree prism was placed before each eye. In a few days this was increased to four degrees and finally to six degrees. After the use of the prisms, no local treatment being employed, there was no return of the rhinitis for two weeks. The prisms were then laid aside and in twenty-four hours there was an attack of rhinitis. For three months while wearing the glasses she has been free from the attacks and the tinnitus is gradualiy diminishing.

THE CONSERVATIVE MANAGEMENT OF LACHRYMAL OBSTRUCTION.

By Dr. Samuel D. Risley, of Philadelphia.

The author claimed that there were many cases of partial lachrymal retention which were liable to be overlooked since the retention was obvious only under exposure or during the use of the eyes at near work. The retained tears however, were the cause of much discomfort in the use of the eyes because of the resulting conjunctival hyperæmia and the disturbance of corneal refraction by the pellicle of tears It was claimed that this condition was due in some instances to contraction of the lachrymal punctum which it was demonstrated by a series of microscopical sections and drawings was provided with a sphincter muscle, and in others to affections of the mucous membrane in and around the nasal end of the lachrymal duct. In treating this condition, simple dilatation of the sphincter was often sufficient, but when this failed, it

should be nicked in the direction of the canaliculus and kept permanently open. In treating the milder forms of blenorrhœa of the sac, either acute or chronic, it was often sufficient to nick the punctum which then readily admitted the point of the syringe, and permitted thorough cleansing of the sac and the application of any desired treatment to its inflamed walls. The closure of the nasal duct, it was held is often due to the uniform thickening of the lining membrane rather than to a stricture at special points. The treatment should therefore be directed to the relief of the general thickening. While the use of probes is frequently necessary, a successful issue can often be reached by careful syringing and internal medication. After the instillation of cocaine through the syringe into the sac, the thickening of the tissue is reduced and fluids will often flow freely into the nose. After thorough cleansing, solutions of nitrate of silver gr.j to the ℥j, tannin or weak iodine solution may be instilled. The painful probing of the duct can, by these means, be avoided in many cases. When the probes are a necessity, they should be only large enough to pass snugly through the duct and should be inserted with a great care, certainly without violence lest the inflamed and brittle membrane lining the uneven surface of the bony duct should fold before the end of the probe and be torn, and the probe be forced downward between the bone and the mucous membrane, an accident which always retarded the progress of the case and often did permanent injury.

The speaker urged the frequency with which the tear duct trouble was associated with affections of the nose, in some cases unquestionably secondary to it, in others the trouble on the floor of the nose and at the anterior end of the inferior turbinated bone, seemed to be due to the absence of the usual flow of tears which permitted the parts to become dry and liable to disease. On the other hand, there had, in his experience, been a larger group of patients in which the lachrymal retention and hyperæmia of the drainage system were unquestionably a part of the chain of symptoms associated with eye strain. The cases with marked choroidal disturbance, associat-

ed with astigmatism are prone to thickening in the retro-tarsal folds, swollen caruncles and epiphora. Typical cases were detailed in which the most varied and painstaking treatment had been unsuccessful until the existing error of refraction had been corrected or the nasal trouble removed by treatment. In young children surgical treatment is rarely needed and cases recorded of adults in which the usual treatment was fruitless until other manifestations of syphilis were detected, and rapid recovery from the epiphora followed the mixed treatment alone.

CLOSURE OF THE LACHRYMAL PUNCTA IN DACRYOCYSTITIS AS A BARRIER AGAINST INFECTION OF THE WOUNDED EYEBALL.

By G. A. Aschman, M.D., of Wheeling.

An unsound condition of the lachrymal passage is a constant menace to the eyeball. The rule is not to operate for cataract, etc., when dacryocystitis is present, or at least before it has been cured. Twenty or thirty per cent of cases of hypopyum keratitis are complicated with dacryocystitis. Persons afflicted with some disease of the lachrymal passages are not inconvenienced to a very great extent and many years may pass until by some slight injury corneal epithelium is removed and the opportunity for infection is given.

The source of the ulcer is often overlooked until hypopyum keratitis has developed and an oculist is consulted. Prompt treatment is then necessary. The usual method is scraping the floor of the ulcer, antiseptic applications, dusting with iodoform, cauterization of the ulcer, paracentesis or the Sæmisch operation. Statistics show that in 9.5% to 19.2% of such cases destruction of the eyeball results.

It had appeared to the author that not enough attention is paid to the source of infection, etc., the lachrymal disease, although the text-books advise to slit the canulaculus and to treat the sac and duct with probe and syringe. But the treat-

ment of dacryocystitis demands time and in the meanwhile the eye may be lost. In order to prevent the entrance of septic matter from the passages into the conjunctival sac the author had, during the past year, endeavored, after thoroughly disinfecting the implicated parts, syringing the sac and duct, etc., to effectually close both lachrymal puncta. This was accomplished by passing a fine electro cautery wire one-eighth inch into the canaliculus, burning the mucous lining with a red heat which resulted in firm adhesion of the walls. Three cases were cited, two of which were advanced hypopyum keratitis resulting from an injury contracted ten or sixteen days before. Muco-purulent dacryocystitis; anterior chamber half full of pus. After the usual treatment, Sæmisch's operation was resorted to. The pus was entirely evacuated, but they did not get better until the lachrymal puncta were closed in the manner described, when recovery rapidly followed. The puncta were easily re-opened afterward. The third case was one of recent ulcus corneæ after injury. No hypopyum, but dacryocystitis. The puncta were closed and recovery was rapid.

In order to close the lachrymal passages a clamp compressing the canaliculus has been devised but does not seem reliable. The canaliculi have also been closed by the catgut ligature.

PURULENT OPHTHALMIA.

By Dr. George M. Gould, of Philadelphia.

The paper referred to the method of infection, treatment and prophylaxis of this affection. He called attention to the obstinacy of the disease to all methods of treatment and the implication of the second eye despite isolation. He believed an explanation of these characteristic features was to be found in the role played by the nose and lachrymal passages as hiding places and ways of transfer for the specific germs; and that the eyes may become originally infected through the nose, the germs ascending by the lachrymal duct and sac. To prevent

repeated re-infection of the eye, the treatment should include the rendering aseptic of the canaliculus, sac and lachrymal duct.

INSUFFICIENCIES OF THE OBLIQUE MUSCLES AND HOW TO CORRECT THEM.

By Dr. G. C. Savage of Nashville, Tenn.

This condition was first described by him in The Archives of Ophthalmology, Vol. XX, No. 1, 1891. The means of determining the existence of this condition is the Maddox prism, The eye under test is the one before which the prism is not. The patient looks at a card, on which there is a single horizontal line held at twelve to sixteen inches from his eyes. The one line is seen as three lines, the middle one of which is seen by the eye under test. It is a physical impossibility for the upper and lower lines to be other than parallel. The middle line should be parallel with them, but it may dip to the same or toward the opposite side. If it dip toward the opposite side the superior oblique is insufficient, if toword the corresponding side, the insufficiency is in the inferior oblique. The insufficiency is usually symmetrical, though there are cases in which it is not symmetrical.

The correction of symmetrical insufficiency is gymnastic exercise of the weak muscles by means of either convex or concave cylinders varying in strength from .50 D. to 3.00 D. and in some cases even a stronger prism may be used. If the superior obliques are wanting in power and the convex cylinders are chosen, their axes must be in the lower temporal quadrant; if concave, in the lower nasal quadrant. If the inferior obliques are insufficient, the placing of these cylinders is reversed. Beginning at 10° from the vertical the exercise is commenced; after the three minutes the axes of the cylinders are moved 10° farther from the vertical and allowed to remain three minutes, and so on until the axes are 45° from the vertical, the point of their maximum strength. The exercise is continued twelve to fifteen minutes during which time patient

is looking steadily at a candle twenty feet distant. The exercise is repeated daily, on the first using a weak cylinder, on the second a stronger and so on, but each day graduating the exercise. By testing for the condition it will be seen that the middle line becomes more nearly parallel with the other two daily. The patient as cases already treated show, get relief.

Dr. S. C. Ayres of Cincinnati, Ohio, reported a case of

EMBOLISM OF THE CENTRAL ARTERY OF THE RETINA, OR THROMBOSIS(?)

and referred to the points of differential diagnosis between the two conditions.

MONOCULAR DIPLOPIA.

By Dr. R. Tilley of Chicago.

He repeated the general features of a case reported by him in 1888 in the AMERICAN JOURNAL OF OPHTHALMOLOGY, and completed the history of the same. The patient who was also color blind recovered from both symptoms but died about eighteen months later. He reported four other cases in which the chief features manifest were confined to the diplopia associated with a certain amount of asthenopia. From the fact that in all the fatal cases followed by autopsies, lesions generally extensive were found in the brain, especially marked in the posterior region of the hemisphere, it was inferred that the lesion producing the phenomenon was cerebral and probably cortical. From the demonstration of syphilis in the father in one case, the large amount of infantile mortality in the family of another and the extensiye involvement of the cervical glands in another, it was suggested that hereditary syphilis was probably the prime cause of the lesion. The chief features in all the fatal cases were great pain in the head, convulsions, severe vomiting and monocular diplopia. The author was disposed to accept the proposed theory of Professor Foutan as

temporarily satisfactory, namely that the impressions produced on the retina divide with the nerve at the chiasm and are appreciated by the cortex as two impressions, that in the normal condition, these are combined by uniting nerve fibres, that when these fibres are interfered with, monocular diplopia results.

EMBOLISM OF THE CENTRAL ARTERY OF THE RETINA.—WITH THE REPORT OF THREE CASES.

By Dr. G. E. de Schweinitz, Philadelphia, Penn.

The author described three cases, in one which he had the opportunity of studying the eye ground twenty minutes after the lodgement of the embolus. Under these circumstances, the fog-like œdema of the retina was observed to begin simultaneously in a peri-papillar haze, and a small somewhat more dense infiltration covering the macular region, the two banks being separated by a portion of comparatively unaffected retina. Gradually they approached each other and the infiltration became general. In the lower temporal vein there was a moderately rapid circulation of blood which flowed toward the disc. Vigorous massage of the eye ball produced no effect upon the embolus and no material change in the ophthalmoscopic appearances. There was a primary complete dwindling of the entire arterial tree, followed seventeen hours after the lodgement of the embolus by an increase in the size of the arteries, with the single exception of the inferior temporal artery which remained thread-like. During this period there was faint return of light perception, which had previously been abolished. This state of affairs continued for 12 days, when the vessels again shrank to mere threads and vision was obliterated. In the other two cases, one studied five months after the accident and the other fifteen hours after the obstruction to the circulation, there was preservation of a small portion of the field of vision on the temporal side, in spite of the apparent complete obliteration of the central artery. In the one case the form sense was preserved in this area upon the temporal

side and in the other case only light-sense. In neither case was there a cilio-retinal vessel. The reporter discussed the differential diagnosis between complete and partial embolism and touched upon some points of difference between thrombosis and embolism of the central artery.

ZONULAR ATROPHY OF THE CHOROID.

By Dr. R. Tilley, of Chicago.

The author reported the case of a man 66 years of age, who for the greater part of his life was an English sailor. There was no specific history. He has a marked intermittent pulse associated with a certain amount of valvular irregularity. There was a history of Dupuytren's fingers in the father and brother of the patient, and this condition was marked in several fingers of the patient himself. He had an incipient capsular cataract in both eyes and in the choroid of the right eye an almost complete band of atrophy, embracing the region of the macula, the widest part being in the lower part of the fundus, and the narrowest part which still presents certain bridges of choroidal tissue not yet atrophied is in the region opposite the O. D. The subjective symptoms complained of consist of a blackish-brown area of loss of vision in the centre of the field and extending upwards. In that region there is a continual whirl of colored sensations, the rotation being towards the nose. The island of tissue within the zone was apparently normal.

The following were elected the officers for the ensuing year:
Chairman, Dr. Samuel D. Risley, of Philadelphia.
Secretary, Dr. H. Gradle, of Chicago.

After passing a vote of thanks to the retiring officers, of the Section adjourned.

AMERICAN SURGICAL ASSOCIATION.

Dr. W. H. Carmalt, of New Haven, read a paper entitled:

Conditions Demanding Excision of The Globe of the Eye.

As a rule, the question of the propriety of enucleating an eye will be referred to the specialist, but there are cases of emergency in which the general surgeon is called upon to act promptly. In the consideration of this subject we are at once confronted with it from two different standpoints, according as we have to deal with blind eyes or with those in which there is a more or less useful degree of vision.

In the case of blind eyes, the objections to the operation are two:

1. The danger of the operation *per se*.
2. The cosmetic appearance.

Meningitis has occurred in some cases operated on in the acute stage of suppurative panophthalmitis. In these cases, the removal should be made just as soon as the evidences of suppuration are unmistakable. In cases of lacerated or penetrating wound with loss of vision, the operation is better done before suppuration occurs, or as soon as the evidences of suppuration are sufficiently plain.

There is no one condition for which the eyes are so frequently excised as in sympathetic ophthalmitis (threatened or actual). The pathology of the s ympathetic process is still a matter of controversy. In a case presenting the irritative symptoms indicating the beginning of sympathetic ophthalmitis, with the other eye lost from injury, or certain forms of disease yet to be mentioned, it is the duty of the surgeon to advise in the most unqualified manner the enucleation of the blind eye. The irritative stage is usually short. It is more

or less rapidly followed by diminution of vision due to an organic lesion. In the acutely inflammatory stage of the sympathetic disease, the removal of the "excitor" is not so beneficial to the "symyathizer," and may be harmful, adding fuel to the already flaming fire. In these cases the operation should be postponed until the active process is subdued. It must also be remembered that in a small number (perhaps about 10 per cent) the sympathetic inflammation may come on after the removal of the excitor, and in about 2 per cent it has been thought to have been the result of operation. The conditions liable to give rise to sympathetic opthalmitis are:

1. Injuries; diseases. Injuries: *a*, lacerating or perforating wounds, so severe that the result will inevitably be atrophy of the globe; *b*, the lodgment of a foreign body in the interior of the globe: *c*, a penetrating wound involving the ciliary region. Diseases: *a*, recurring or chronic iridochoroiditis from whatever cause; *b*, atrophy of globe following purulent keratitis, or panophthalmitis, or in which ossific degeneration of the choroid has taken place; *c*, atrophy of the globe from any cause with painful ciliary region. Time does not confer immunity against sympathetic diseases. There is considerable difference as to liability to the disease in the various injuries and diseases. The sequence is more frequent after injuries than after non-traumatic diseases, and of injuries, nothing is so potent as the lodgment of a foreign body in the eye.

The pain which comes from the intra-ocular pressure of a chronic glaucomatous degeneration is frequently so excessive as to justify the removal of the offending organ—other means of treatment having failed.

Various diseases of the eye leave the organ in conditions so inconvenient or repulsive in appearance that the surgeon's aid is sought for purely cosmetic purposes. Are there, however, no procedures that may be substituted and avoid so severe a mutilation? In the earlier days of ophthalmology, abscision of the anterior segment of the globe was often practiced. In this operation more or less evisceration of the contents of the globe takes place. As a matter of fact, the result is about the

same as after enucleation, and sympathetic ophthalmia may follow the operation. The opinion of the author was decidedly against such risky procedures—enucleation of the misshapen eye, with the introduction of an artificial, is the only admissible operation. The modern expedient of tattooing a white cicatrix of the cornea without staphyloma has resulted in sympathetic disease.

The enucleation of blind eyes that are the seat of phosphenes, like many operations undertaken to relieve a symptom of nerve irritation, it is of doubtful utility.

In regard to the enucleation of eyes only partially blind, it goes without saying that a condition of things which can allow it to be seriously contemplated must apply with greater force to eyes already blind. The chances of accident or independent disease to the remaining eye are sufficiently great to justify the statement that nothing but the certainty of ultimate blindness to both, or of death, can permit us to consider such a procedure.

Most of the intra ocular tumors are sufficiently dangerous to life to demand the removal of the organ in which they are contained, as the only hope that can be entertained of successfully combating their encroachment. They are of two classes: the granulomata and sarcomata.

The extra-ocular growths are of greater variety of histological structure. In sarcomata of the orbit removal of the globe is often required, even when not implicated in the disease.

Should an eye which retains an appreciable degree of vision be removed in order to arrest a threatened or prospective attack of sympathetic disease in the fellow? It is certainly unjustifiable to remove an injured, but still seeing eye, though it may be an excitor of sympathetic disease. The result of the operation has not been sufficiently successful in arresting the progress of the malady after it has begun to warrant its recommendetion. The only condition in which it was considered justifiable to remove a still seeing eye, for sympathetic disease, is where a foreign body remains in the eye. In these cases sympathetic disease is very apt to follow.